Adobe

Adobe Type 1 Fonts

Communication Handbook

Guidelines for communicating the major features and benefits of the Type 1 font format from Adobe Systems

POSTSCRIPT™
Software From Adobe

Adobe Systems revolutionized electronic printing and publishing when it introduced the first Type 1 outline fonts in 1984. Adobe™ was the first company to license typographic-quality fonts and make them available in electronic form to everyone from users of desktop computers and printers to professional publishers.

The support Adobe's Type 1 format has received since then from leading typeface vendors, hardware manufacturers, software developers, and users has made it an industry standard. In fact, the International Standards Organization has specified Adobe's Type 1 format as the standard for outline fonts.

Type 1 fonts are compatible with a wider range of computer systems, operating systems, output devices and software applications than any other type technology in the history of computing and publishing. As a result, the PostScript™ language and the Type 1 format have become part of the basic fabric of the printing, publishing, and computing industries.

With its expertise in both type design and computer technology, Adobe is committed to enhancing the Type 1 standard. It continues to expand the Adobe™ Type Library by offering the most popular designs from the world's leading type foundries and by creating a collection of original typeface designs and classic revivals known as Adobe Originals.™ At the same time, it continues to advance the technology behind digital type, as demonstrated most recently by multiple master typefaces and the Adobe Type 1 Coprocessor.

This handbook provides an overview of Adobe's type technology and provides answers to many of the most-frequently-asked questions about Type 1 and competing font formats. We hope you find this information useful in understanding the benefits of Type 1 font software and its role as a standard that provides significant advantages to the computing and electronic printing and publishing industries.

Table of Contents

An Overview 2-5

Using Adobe Type 1 Fonts 6-9

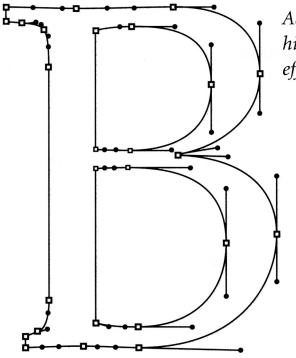
Adobe Type 1 Fonts and Other Font Formats 10-11

The Industry Standard 12-15

Glossary 16-17

An Overview

Type 1 is an outline font format invented by Adobe. It is a key component of the PostScript language, and every printer with PostScript software from Adobe includes a collection of Type 1 fonts.



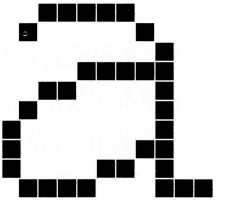
Adobe Type 1 outlines are designed to provide high quality, typefaces compact file size and efficient, reliable performance.

Each character in a Type 1 font is a PostScript language program representing a series of lines and curves, which can be scaled to any size. This mathematical representation of the shape of each character can be displayed and printed at any resolution, in any color, and at any degree of rotation. From one outline, characters may be created for a full range of displays and hardcopy output devices, from low-resolution dot matrix printers to laser printers to high-resolution imagesetters or film recorders.

PostScript software and Type 1 fonts are "device independent," that is, they are not tied to a specific device. The same Type 1 font can be used for a 96 dots-per-inch (dpi) display screen, a 300 dpi laser printer or a 3,000 dpi imagesetter.

Adobe's device-independent Type 1 technology eliminated the need for bitmap fonts and made a wide selection of typefaces available to users of a variety of devices. By bringing high-quality, scalable type to desktop computer users, Adobe Type 1 fonts made it less expensive and more efficient to create professional-looking documents. For that reason, Type 1 fonts are a key part of the technology that helped create and establish the desktop publishing industry.

Before Adobe introduced the Type 1 format, hardware manufacturers sold bitmap fonts for their devices. A character in a bitmap font is a pattern of dots (bits) that closely resembles a character shape in a given typeface, point size, rotation and resolution. Bitmap fonts from a specific hardware manufacturer worked only on that manufacturer's output devices.

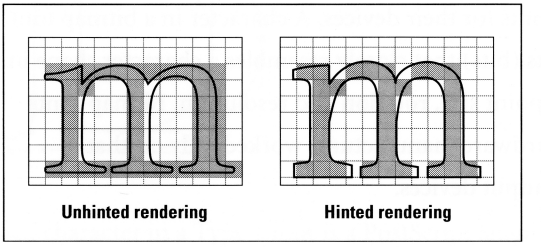


A bitmap font is a pattern of bits arranged to represent character shapes.

A bitmap font consists of type in only one size (e.g., 10 point) for one resolution (e.g., 300 dpi). A different bitmap font is required for each size and each resolution. These fonts require "hand-tuning," a process that adjusts the shape of each character to look as good as possible when printed at a specific size and resolution.

To get multiple sizes of one typeface, users needed a collection of bitmap fonts, which required a large amount of storage space.

To achieve the highest quality possible for a variety of sizes and resolutions, Type 1 fonts are "hinted." Hints are additional instructions for each character that are programmed into every Type 1 font. Hints are designed to improve the appearance of the character at small point sizes and at low resolutions.



Adobe Type 1 outline fonts are hinted to ensure that text remains legible at small point sizes and low dpi resolutions. Type 1 fonts do this automatically.

Hinting accomplishes what hand-tuning did—better quality type at a given size and resolution. Adobe's innovation is that a Type 1 font with PostScript software does this automatically.

Recognizing that Adobe's technology produces electronic fonts that faithfully reproduce the appearance of professional-quality typefaces, the most prestigious type foundries in the world produce fonts in the Type 1 format and license their typeface designs to Adobe. They include Agfa, Berthold, International Typeface Corporation, Linotype-Hell, Monotype, and Morisawa.

PostScript software and Type 1 fonts are now available on all major desktop computers in the form of Adobe Type Manager™ (ATM™) and the Display PostScript™ system. Type 1 fonts can be displayed and printed from Windows™, OS/2®and DOS on the PC platform as well as from the Macintosh®and a variety of UNIX®workstations.

Among the benefits ATM and the Display PostScript system offer is sharp text on the display, which dramatically improves the WYSIWYG (What You See Is What You Get) effect between display and printer. Better WYSIWYG means more convenience and higher productivity for users creating documents of all kinds.

Adobe has produced more than 1,600 Type 1 fonts for the Adobe Type Library and some 30 other vendors have produced and distribute more than 15,000 Type 1 fonts worldwide. All these fonts can be displayed by more operating systems and printed to more devices than any other type technology. Whenever you purchase a printer or computer that contains PostScript software from Adobe, or a software application that includes ATM, you also get a collection of Type 1 fonts and access to thousands more.

Only Adobe Type 1 fonts, which offer device independence, the industry's most extensive font library, and wide availability give users the assurance they can maintain font compatibility across different systems and different printers.

Using Adobe Type 1 Fonts

Users may get access to Adobe Type 1 fonts for display or printing by:

- Installing Adobe Type Manager software on their computer. This is by far the most common way to get Type 1 fonts.
- Using a UNIX workstation from DEC, IBM, NeXT, or Silicon Graphics that is running the Display PostScript system.
- Installing CPSI (Configurable PostScript Interpreter) from Adobe on a standard workstation.
- Printing to a PostScript printer (or to a non-PostScript printer with ATM or CPSI).

While the means of accessing Type 1 fonts are different, the results are the same — high quality type and reliable viewing and printing of documents. Because of its widespread use, ATM software is the focus of this section.

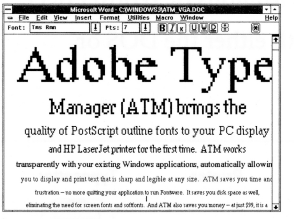
ATM is system-level software that instantly generates type at any size and resolution from Type 1 fonts. ATM generates type automatically for both displays and non-PostScript printers. For PostScript printers, ATM allows Type 1 fonts to be downloaded for quick and efficient printing.

Like Type 1 fonts, ATM is actually a component of PostScript software — essentially it is the *type rasterizer* in PostScript software, modified to be used in the host computer. Introduced in 1989, ATM software has become the de facto standard type rasterizer.

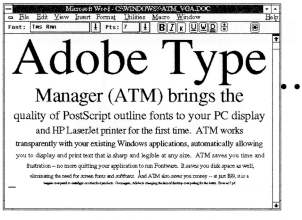
ATM is available for:

The Macintosh. ATM was introduced first for the Macintosh and quickly became an indispensable addition to the computer's system software. Due to its success, Apple will integrate ATM into the Macintosh operating system in future releases of System 7.

Microsoft Windows. Introduced for Windows 3.0 in 1990, ATM brought the same type capabilities and ease of use features to Windows that it had brought to the Macintosh. Users with both Macintosh and PC computers could rely on one common font format to bridge the platforms. In Windows 3.1 (and also with the Mac®) environments, TrueType™ fonts co-exist with ATM and

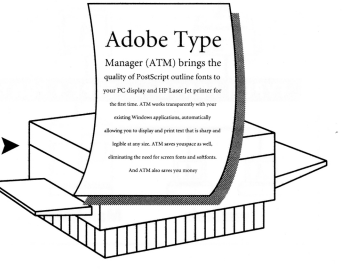


Without Adobe Type Manager



With Adobe Type Manager

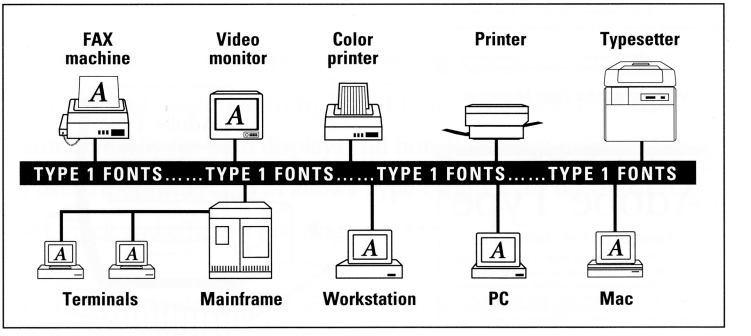
ATM creates sharp, smooth type for displays and printers from Adobe Type 1 outline fonts.



Type 1 software. As a result, users can reliably view their documents and print them to any Windows-supported printer.

OS/2. ATM is integrated into OS/2 and has been adopted by IBM as the standard type technology for all SAA-compliant systems. OS/2 users can use the same Type 1 fonts they purchased for their DOS or Windows applications, thereby maximizing the return on their investment in cross-platform-compatible Type 1 fonts.

WordPerfect. Recently WordPerfect Corporation and Adobe announced that ATM and a collection of Type 1 fonts will be integrated into WordPerfect software, the best-selling word processing application on the PC platform. Millions of WordPerfect users will be able to use Type 1 fonts with either the DOS or Windows version of WordPerfect.



Type 1 fonts are supported by various computers and output devices. Adobe's PostScript language and Type 1 font format provide document portability in multi-platform environments

Type 1 font technology also protects a user's investment whenever ATM upgrades are introduced. New versions of ATM do not make existing fonts obsolete; the upgraded version of ATM simply uses existing Type 1 fonts to produce better-looking type faster than ever before. Type 1 fonts are the safest investment in type technology a user can make.

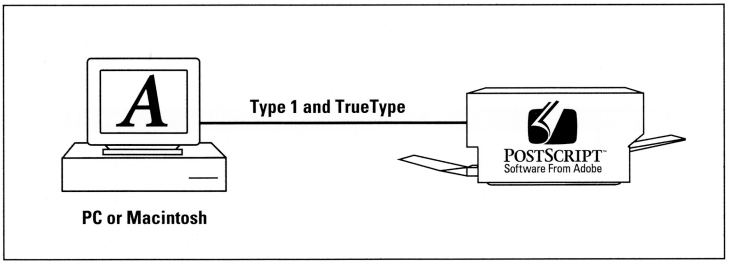
With the access provided by ATM software, users can choose from thousands of Type 1 fonts to help them create documents that get attention and get your message across.

Adobe Type 1 and Other Font Formats

Adobe's Type 1 technology has been available and in widespread use since 1984. During that time, while Type 1 has become an industry standard, other font formats have been developed using different outline font technologies. Like Type 1, many of them provide font scaling on both computer displays and hardcopy output devices.

Only Adobe Type 1 fonts, however, are available across a variety of computer platforms, are supported by thousands of software applications, and are resident in more than 250 products.

Although other formats "compete" with Type 1, they also co-exist with Type 1 under the specific operating systems they support. That means users can combine, for example, Type 1 and TrueType fonts in the same document. Adobe believes users should be able



No matter whether it's Type 1 or TrueType, both work well for PostScript ouput devices.

to focus on producing the most effective documents rather than worrying about type formats. With the Type 1 format, users retain complete freedom of choice, in the type of computer they use, their operating system and their application. They also have a choice among 15,000 fonts, more than are available in any other format.

Because Type 1 fonts are PostScript language files, they produce the highest-quality documents on PostScript printers from such manufacturers as Apple, Compaq, Hewlett Packard, IBM, Texas Instruments, Xerox and many others. Customers not only get high quality text with a PostScript printer but graphics, images and color capabilities—something that other font formats simply don't do.

Type 1 fonts are available for Macintosh computers, PCs with DOS, Windows or OS/2, UNIX workstations, VAX™/VMS™ and mainframe computers. Aside from high quality typefaces, Type 1 font format has additional benefits to all kinds of customers:

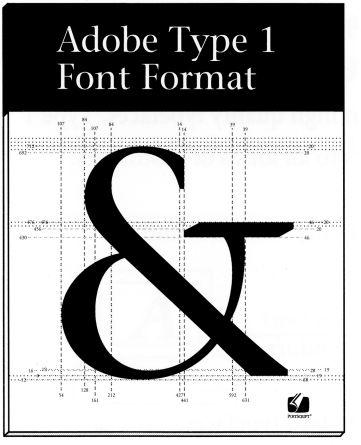
- Compatible with widest range of output devices and software applications
- More fonts available from more vendors
- Widest selection of corporate standard typefaces
- Easy to install and use

The Industry Standard

Type 1 fonts have become the industry standard for outline type because they offer a combination of benefits and advantages no other technology can match, including:

Open standard. The specification for creating Type 1 fonts is published in a book entitled *Adobe Type 1 Font Format*, available from Addison-Wesley. More type vendors create, sell, and support Type 1 fonts than any other font format in the world.

ISO Standard. The International Standards Organization, in ISO specification 9541, identifies Adobe's Type 1 format as the worldwide standard for outline fonts. This means that customers,



The Type 1 specification is designed to provide software developers and type vendors information for developing and supporting high quality and efficient Type 1 fonts.

software developers and hardware manufactures requiring international standards can rely on Adobe Type 1.

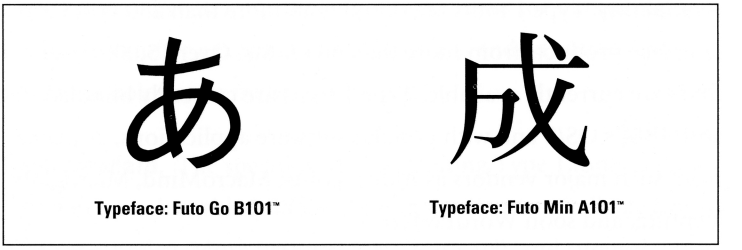
Availability. Type 1 fonts are shipping in more than 250 PostScript language products from more than 40 OEMs. Over 15,000 Type 1 fonts are currently available. Type 1 fonts are currently bundled with IBM's OS/2 and with popular software applications, available from such major vendors as Aldus, Lotus, MacroMind, Micrografx, Ventura, and soon WordPerfect.

Cross-platform compatibility. Type 1 fonts are available for Macintosh, DOS, Windows, OS/2, UNIX and PC UNIX workstations, VAX/VMS and mainframe computers.

Proven font-building tools. Software tools used to design, produce, and quickly manufacture Type 1 fonts are available from Adobe and many third parties. The world's most prestigious type foundries use them to create fonts in the Type 1 format. To ensure compatibility and quality, Adobe provides extensive technical support to vendors developing Type 1 fonts.

Small code size. Type 1 fonts occupy as much as 50 percent less disk space than competing font formats. This saves precious hard disk space.

Non-roman font support. Japanese, Chinese, Cyrillic and other non-roman languages with very large character sets, multiple writing directions, and complex encodings are supported by the Type 1 font format.



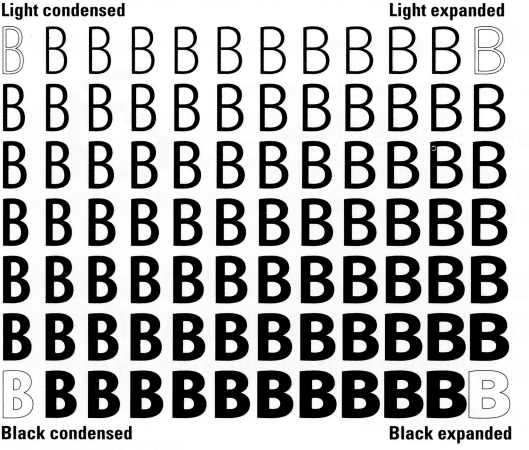
The Adobe Type 1 technology is well-suited for output devices and displays supporting complex character sets, such as Kanji.

Extensible technology. The Type 1 font format has proven to be very extensible, as demonstrated by the recent development of multiple master typefaces, an advancement that enables users to customize the appearance of a typeface for a specific document.

Offering capabilities not available from competing technologies, multiple master typefaces give users a new level of flexibility and control over the look of fonts on screen and in documents. Multiple master software also offers software developers the ability to incorporate advanced features for hyphenation and justification, copy fitting, and graphic design.

In addition, multiple master technology will play a key role in future products enabling users to communicate documents electronically. Such products will take advantage of a feature of some multiple master typefaces called *font substitution.* Font substitution is the ability of one multiple master font to closely mimic another font, thereby preserving the text format of an electronically com-

municated document, even when a recipient doesn't have typefaces that were part of the original document. With font substitution, document exchange becomes more efficient and users more productive.

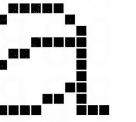


Multiple master fonts generate a vast array of fonts from "master designs" shown at the corners of this matrix. Represented here is Adobe's Myriad™ multiple master font.

Glossary

Adobe Type Manager (ATM)—A system software utility that quickly generates type at any size from Type 1 outline fonts. ATM software belongs to a category of software programs called type rasterizers.

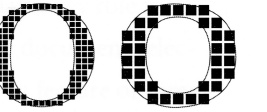
Bitmap font—A pattern of dots (bits) that closely resembles a character shape in a given typeface, point size and resolution. Bitmaps cannot be scaled without distortion and require considerable storage space.



Font—An implementation of a typeface in a specific medium, such as metal, film or digital format. Traditionally, a font in metal type consisted of all characters in a single size, such as Palatino* Italic 12 point bold.

In the digital medium, a bitmap font is the file containing all characters in a single size. An outline font, in contrast, is a file containing outline characters that can be scaled to any size.

Hinting—The process of adding information to a character's outline to improve its appearance at low resolutions and small point sizes. For example, hints make stem weights consistent and align characters accurately to make baselines even.



24 pt. at 72 dpi **12 pt. at 72 dpi (magnified)**

Outline font—A method of describing the shapes of the characters in a typeface by a program. This mathematical representation of lines and curves is resolution-independent and device-independent.

Rasterizing—The process of converting outline characters into bitmaps at the resolution of the target display or printer.

Typeface—A collection of characters with a unique design. For example, Palatino Bold and Helvetica® Regular are typefaces.

Palatino Bold
Helvetica Bold

Type 1 font—An outline font program based on the PostScript language. Most PostScript printers contain a number of Type 1 fonts in ROM, and additional fonts can be downloaded. Type 1 fonts are more compact than Type 3 fonts (see next definition) and contain hints.

Type 3 font—An outline or bitmap font format introduced by Adobe. The Type 3 format is also a PostScript program but does not contain hints. Type 3 fonts are also called "user-defined fonts," and are useful for describing complex graphic shapes, such as a logo.

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